Stylidium elachophyllum A.R.Bean & M.T. Mathieson (Stylidiaceae), a new species from northern Queensland

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Summary

Bean, A.R. & Mathieson, M.T. (2012). *Stylidium elachophyllum* A.R.Bean & M.T.Mathieson (Stylidiaceae), a new species from northern Queensland. ***Austrobaileya*** **8(4): 608–612.** *Stylidium elachophyllum* is described as new. It is an ephemeral herb known only from the Hann Tableland in northern Queensland, with a morphological affinity to *S. fissilobum* F.Muell., *S. prophyllum* Lowrie & Kenneally and *S. oviflorum* A.R.Bean. The species is illustrated and diagnosed against related taxa. Its conservation status is assessed and a status of Endangered is recommended.

Key Words: Stylidiaceae, *Stylidium*, *Stylidium elachophyllum*, Australia flora, Queensland flora, new species, taxonomy, conservation status

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Introduction

The tropical triggerplants of Australia are diverse and difficult to study as they are nearly all ephemeral and are fertile just after the wet season when field access to them is difficult. A number of new *Stylidium* species from tropical Australia have been described in recent years (Lowrie & Kenneally 1997, 1999; Bean 1997, 2000, 2010).

During a visit to the Hann Tableland, west of Mareeba in north Queensland in May 2010, the second author discovered a population of *Stylidium* Sw. ex Willd. that did not match any named species. No material could be found at BRI or CNS that corresponded with this species. Further material was collected in March 2012, enabling its unnamed status to be confirmed and its formal description herein.

Materials and methods

This research is based on a study of herbarium specimens and associated spirit collection at BRI and CNS, and field studies at the type locality. All measurements have been made from material preserved in spirit.

RE refers to Regional Ecosystem, descriptions of which can be viewed at (in this case): http://www.derm.qld.gov.au/wildlife-ecosystems/biodiversity/regional_ecosystems/search.php?&page=31

Taxonomy

Stylidium elachophyllum A.R.Bean & M.T.Mathieson **species nova**; affinis *Stylidio fissilobo* sed absentia glandium paracorollae, apicibus integris loborum posteriorum anteriorumque (in *S. fissilobo* utrique bilobi), labello e basi sinus anterioris affixo (in *S. fissilobo* parti externae tubi corollae affixo) et capsulis 6–9 mm longis (non 12–21 mm longis) differens. **Typus:** Queensland. Cook District: Hann Tableland National Park, NW of Mareeba, 27 March 2012, *M.T. Mathieson MTM1292* (holo: BRI [1 sheet + spirit]; iso: CNS, *distribuendi*).

Annual herb, 3–10 cm high. Glandular hairs 0.05–0.1 mm long, glands dark red to brown, globose. Rootstock not thickened. Stems present, glabrous. Leaves 2–6, scattered along stems, green, deltate, 0.5–1.7 mm long, 0.3–0.6 mm wide, sessile, glabrous, apex obtuse or acute, base truncate. Scapes absent. Inflorescences 1.5–3 cm long, determinate; branches monochasially cymose. Bracts deltate to lanceolate, 0.9–1.5 mm long, glabrous, apex obtuse or acute. Pedicels absent. Hypanthium linear, glandular-hairy at

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distal end only. Sepals elliptical, 3 free and 2 mostly fused, 1.2–1.5 mm long, 0.3–0.4 mm wide, sparsely glandular-hairy, apex obtuse. Corolla pink, tinged yellow at the junction of anterior and posterior petals, glandular-hairy on tube only. Corolla tube 1.7–2.1 mm long, with sinus on anterior side only. Paracorolla (throat appendages) discontinuous, glabrous, decurrent with corolla, free part *c.* 0.1 mm high; lobes 4–6, all similar, 2 opposite the anterior petals, 2–4 opposite the posterior petals; glands absent. Labellum attached at base of anterior sinus of corolla tube, ovate or lanceolate, 0.5–0.8 mm long, glabrous; terminal appendage absent or present, to 0.3 mm long; basal appendages absent. Corolla lobes divided to the throat, with a central longitudinal vein; anterior lobes obovate, 0.7–1.1 mm long, 0.4–0.7 mm wide, entire, obtuse; posterior lobes obovate, 1.5–1.8 mm long, 0.8–1.2 mm wide, entire, obtuse. Column 3–4 mm long, of uniform width throughout, glabrous, lateral lobes absent, spur absent. Stigma sessile. Capsule linear, without raised longitudinal ribs, 6–9 mm long excluding sepals, 0.6–0.7 mm wide, halves coherent distally. Seeds ellipsoidal, 0.2–0.25 mm long, brown, colliculate. **Fig. 1–3**.

***Additional specimen examined*:** **Queensland.** COOK DISTRICT: Hann Tableland N.P., NW of Mareeba, May 2010, *Mathieson MTM814 & Forster* (BRI).

***Distribution and habitat*:** *Stylidium elachophyllum* is endemic to northern Queensland and has been found only in the Hann Tableland N.P., about 20 km north-west of Mareeba. It grows in ephemeral vegetation in shallow soil-filled depressions or fringing mats of *Borya septentrionalis* F.Muell. on granite pavements (RE7.12.37) at approximately 800 m altitude. Vascular flora associated with this habitat at this site includes *Xyris pauciflora* Willd., *Polycarpaea spirostylis* F.Muell., *Eriocaulon pusillum* R.Br., *Drosera indica* L., *Byblis liniflora* Salisb., *Utricularia chrysantha* R.Br., *Stylidium oviflorum* A.R.Bean, *S. capillare* R.Br., annual grasses including *Schizachyrium pachyarthron* C.A.Gardner, *Dimeria ornithopoda* Trin. and *Sacciolopis indica* (L.) Chase, and annual sedges including *Fimbristylis furva* R.Br. and *Fuirena ciliaris* (L.) Roxb.. These ephemeral species grow during the wet season when there is a largely continuous supply of water, either as rain or run-off, but completely desiccate during the dry season.

Vegetation surrounding the granite pavements is comprised of sclerophyll woodland dominated by *Eucalyptus portuensis* K.D.Hill, *E. atrata* L.A.S.Johnson & K.D.Hill, *E. lockyeri* Blaxell & K.D.Hill, *Corymbia intermedia* (R.T.Baker) K.D.Hill & L.A.S.Johnson and *C. leichhardtii* (F.M.Bailey) K.D.Hill & L.A.S.Johnson, generally with scattered *Melaleuca viridiflora* Sol. ex Gaertn. and *Xanthorrhoea johnsonii* A.T.Lee in the understorey. The area is in general quite fire-prone.

***Phenology*:** Flowers and fruits are recorded for March, when plants were observed to be abundant, and May, when very few plants were observed as the habitat dried out.

***Affinities*:** *Stylidium elachophyllum* is morphologically allied to *S. fissilobum* F.Muell., *S. prophyllum* Lowrie & Kenneally and *S. oviflorum* of *S.* subgenus *Andersonia* (R.Br. ex G.Don) Mildbr. (see Bean 2000). It shares with these species the small scale-like leaves that are scattered along the stem of the plant, and the corolla lobes divided to the throat or almost so.

Stylidum elachophyllum differs from *S. fissilobum* by having entire corolla lobe apices (bilobed in *S. fissilobum*), a labellum which is attached at the base of the anterior sinus (attached to the outside of the corolla tube in *S. fissilobum*), and capsules which are 6–9 mm long (12–21 mm long in *S. fissilobum*). *S. elachophyllum* differs from *S. oviflorum* in possessing a pink corolla (white and yellow in *S. oviflorum*) with smaller anterior and posterior lobes, a labellum which is attached at the base of the anterior sinus (attached to the outside of the corolla tube in *S. oviflorum*), a shorter column that lacks lateral lobes, capsules which are 6–9 mm long (18–25 mm long for *S. oviflorum*), and a colliculate seed surface (smooth in *S. oviflorum*). *S. elachophyllum* differs from *S. prophyllum* in having glandular-hairy sepals (glabrous in

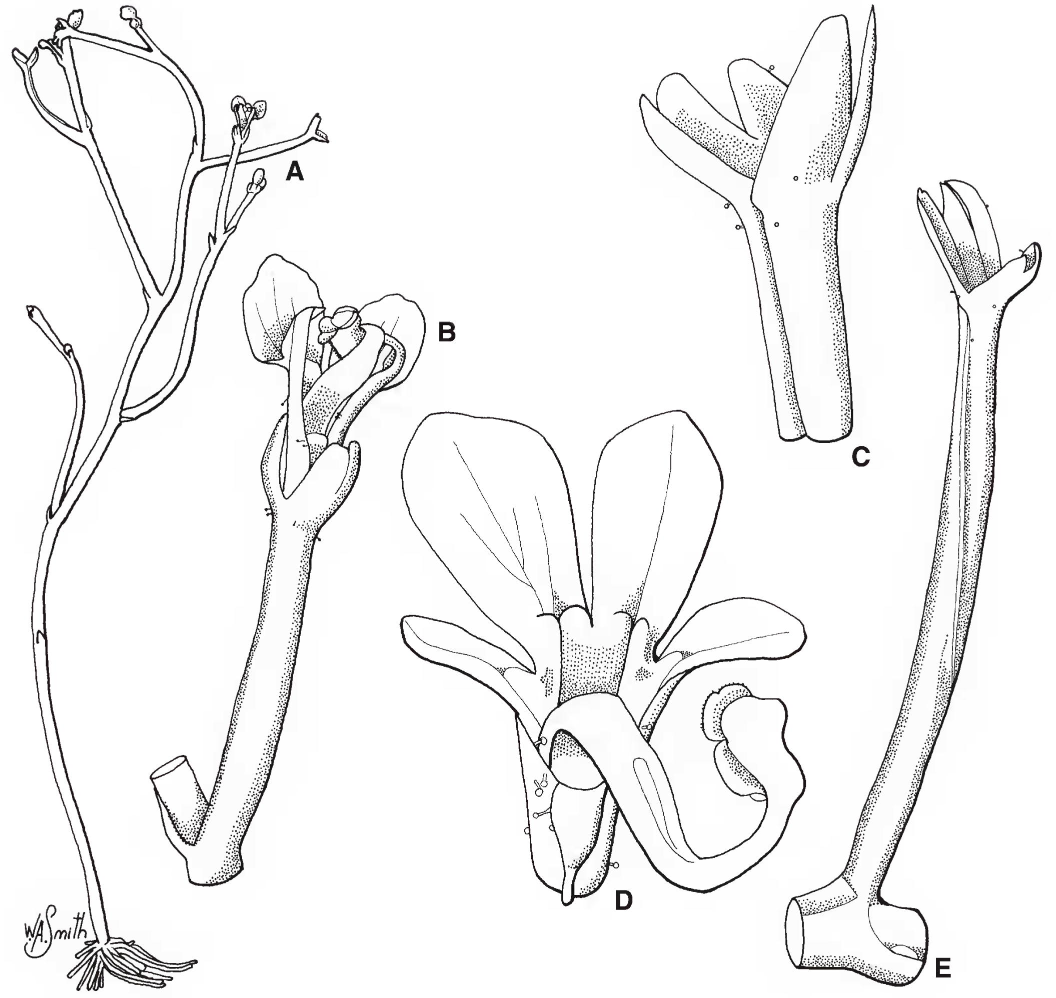

Fig. 1. ***Stylidium elachophyllum***. A. whole plant ×1.5. B. flower ×8. C. calyx lobes ×16. D. corolla and column ×16. E. undehisced capsule ×8. All from *Mathieson MTM1292* (BRI). Del. W. Smith

S. prophyllum), a smaller and more obscure paracorolla, much smaller anterior and posterior corolla lobes, a column which is 3–4 mm long (5–6 mm in *S. prophyllum*), and capsules which are 6–9 mm long (11–17 mm in *S. prophyllum*).

***Conservation status*:** This species is only known from a single location on the Hann Tableland within Hann Tableland National Park. It was not encountered elsewhere on the Hann Tableland despite extensive searches in similar habitats during two expeditions.

The population at the type locality is estimated to be between 200 and 500 plants occupying an area of less than five hectares. With encroachment of introduced, hyperinvasive grasses (*viz.* giant rat's tail grass *Sporobolus pyramidalis* (Lam.) Hitchc., grader grass *Themeda quadrivalvis* (L.) Kuntze and gamba grass *Andropogon gayanus* Kunth) and the rampant herbaceous weed *Praxelis clematidea* R.M.King & H.Rob. into the ephemeral flush wetland habitats on granite outcrops immediately adjacent to the

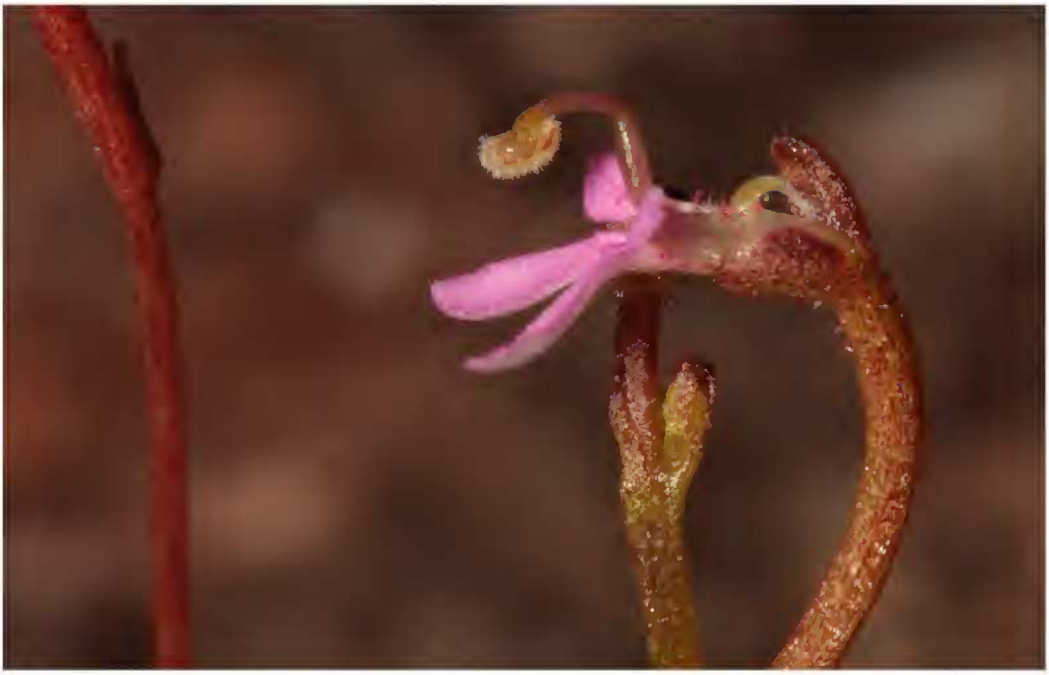

Fig. 2. ***Stylidium elachophyllum***, side view of flower, photographed in habitat (*Mathieson MTM814*)

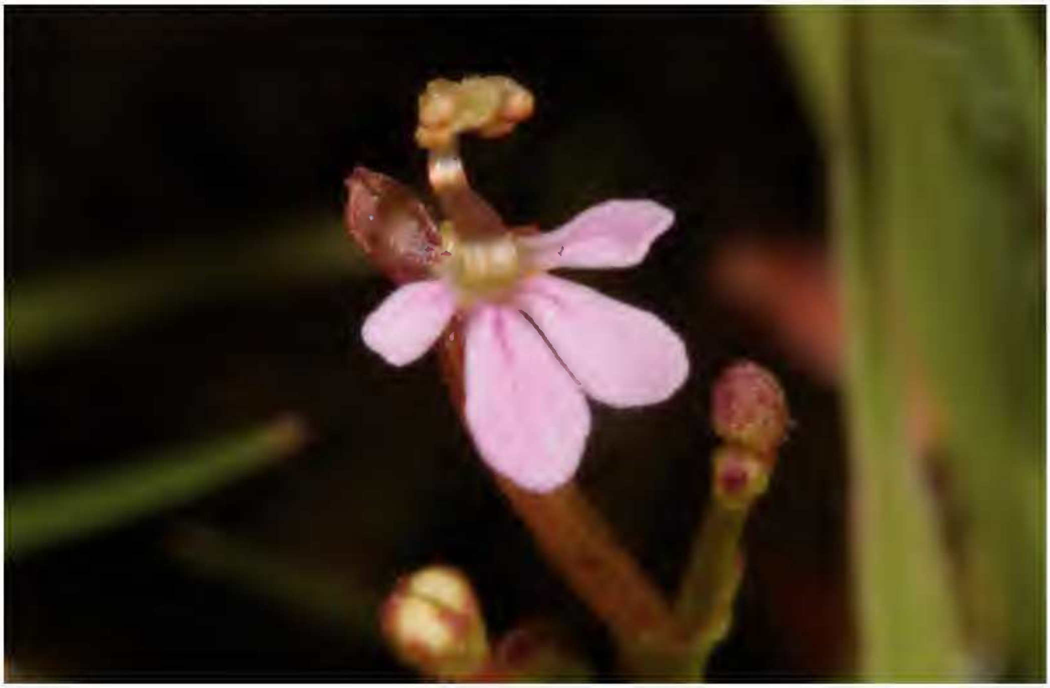

Fig. 3. ***Stylidium elachophyllum***, front view of flower, photographed in habitat (*Mathieson MTM1292*)

type locality, this population is considered greatly threatened. Applying criteria of the IUCN (IUCN 2001), the recommended conservation status is Endangered (B2b(iii); C2a(ii)).

***Etymology*:** From the Greek *elacho-* small, and *phyllon* – leaf, in reference to the very small scale-like leaves of this species.

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